

WHAT IS CLAIMED IS:

- 1 1. A method, comprising:
2 receiving an I/O request to an object in storage;
3 defragmenting the object in storage so that blocks in storage including the object
4 are contiguous in response to receiving the I/O request; and
5 executing the I/O request with respect to the object in storage.

- 1 2. The method of claim 1, wherein the I/O request is executed with respect to
2 the object after defragmenting the object.

- 1 3. The method of claim 1, further comprising:
2 determining whether an amount of fragmentation of the object in the storage
3 exceeds a fragmentation threshold in response to receiving the I/O request, wherein the
4 object is defragmented if the amount of fragmentation exceeds the fragmentation
5 threshold.

- 1 4. The method of claim 1, further comprising:
2 determining whether a user settable flag indicates to perform defragmentation in
3 response to receiving the I/O request, wherein the object is defragmented if the flag
4 indicates to perform defragmentation.

- 1 5. The method of claim 4, further comprising:
2 executing the I/O request without performing defragmentation if the flag does not
3 indicate to perform defragmentation.

- 1 6. The method of claim 1, further comprising:
2 determining at least one logical partition including the object, wherein the object
3 is defragmented if the object is within one logical partition.

1 7. The method of claim 1, further comprising:
2 determining whether the object is read-only, wherein the object is defragmented if
3 the object is not read-only.

1 8. The method of claim 1, wherein the operation of defragmenting the object
2 in storage is performed by a storage controller managing I/O requests to the storage.

1 9. The method of claim 1, wherein the operation of defragmenting the object
2 in storage is performed by a device driver for the storage providing an interface to the
3 storage.

1 10. A system in communication with storage, comprising:
2 circuitry enabled to:
3 (i) receive an I/O request to an object in the storage;
4 (ii) defragment the object in storage so that blocks in storage including the
5 object are contiguous in response to receiving the I/O request; and
6 (iii) execute the I/O request with respect to the object in storage.

1 11. The system of claim 10, wherein the I/O request is executed with respect
2 to the object after defragmenting the object.

1 12. The system of claim 10, wherein the circuitry is further enabled to:
2 determine whether an amount of fragmentation of the object in the storage
3 exceeds a fragmentation threshold in response to receiving the I/O request, wherein the
4 object is defragmented if the amount of fragmentation exceeds the fragmentation
5 threshold.

1 13. The system of claim 10, wherein the circuitry is further enabled to:
2 determine whether a user settable flag indicates to perform defragmentation in
3 response to receiving the I/O request, wherein the object is defragmented if the flag
4 indicates to perform defragmentation.

1 14. The system of claim 13, wherein the circuitry is further enabled to:
2 execute the I/O request without performing defragmentation if the flag does not
3 indicate to perform defragmentation.

1 15. The system of claim 10, wherein the circuitry is further enabled to:
2 determine at least one logical partition including the object, wherein the object is
3 defragmented if the object is within one logical partition.

1 16. The system of claim 10, wherein the circuitry is further enabled to:
2 determine whether the object is read-only, wherein the object is defragmented if
3 the object is not read-only.

1 17. The system of claim 10, wherein the circuitry is implemented in a storage
2 controller managing I/O requests to the storage, wherein operation of defragmenting the
3 object in storage is performed by the storage controller.

1 18. The system of claim 10, wherein the circuitry is implemented in a device
2 driver interfacing between an operating system and the storage, and wherein the
3 operation of defragmenting the object in storage is performed by the device driver.

1 19. A system, comprising:
2 storage;
3 a storage controller coupled to the storage, wherein the storage controller is
4 enabled to:
5 (i) receive an I/O request to an object in the storage;
6 (ii) defragment the object in storage so that blocks in storage including the
7 object are contiguous in response to receiving the I/O request; and
8 (iii) execute the I/O request with respect to the object in storage.

1 20. The system of claim 19, wherein the storage controller is further enabled
2 to:

3 determine whether an amount of fragmentation of the object in the storage
4 exceeds a fragmentation threshold in response to receiving the I/O request, wherein the
5 object is defragmented if the amount of fragmentation exceeds the fragmentation
6 threshold

1 21. The system of claim 19, wherein the storage controller and storage device
2 are included in a same housing.

1 22. The system of claim 19, further comprising:
2 a processor; and
3 a memory enabled to store the I/O request before the I/O request is received by
4 the storage controller.

1 23. An article of manufacture in communication with storage, wherein the
2 article of manufacture is enabled to:
3 receive an I/O request to an object in storage;
4 defragment the object in storage so that blocks in storage including the object are
5 contiguous in response to receiving the I/O request; and
6 execute the I/O request with respect to the object in storage.

1 24. The article of manufacture of claim 23, wherein the I/O request is
2 executed with respect to the object after defragmenting the object.

1 25. The article of manufacture of claim 23 further enabled to:
2 determine whether an amount of fragmentation of the object in the storage
3 exceeds a fragmentation threshold in response to receiving the I/O request, wherein the
4 object is defragmented if the amount of fragmentation exceeds the fragmentation
5 threshold.

1 26. The article of manufacture of claim 23 further enabled to:
2 determine whether a user settable flag indicates to perform defragmentation in
3 response to receiving the I/O request, wherein the object is defragmented if the flag
4 indicates to perform defragmentation.

1 27.. The article of manufacture of claim 26 further enabled to:
2 execute the I/O request without performing defragmentation if the flag does not
3 indicate to perform defragmentation.

1 28. The article of manufacture of claim 23 further enabled to:
2 determine at least one logical partition including the object, wherein the object is
3 defragmented if the object is within one logical partition.

1 29. The article of manufacture of claim 23 further enabled to:
2 determine whether the object is read-only, wherein the object is defragmented if
3 the object is not read-only.

1 30. The article of manufacture of claim 23 wherein the operation of
2 defragmenting the object in storage is performed by a storage controller managing I/O
3 requests to the storage.

1 31. The article of manufacture of claim 23, wherein the operation of
2 defragmenting the object in storage is performed by a device driver for the storage
3 providing an interface to the storage.